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REMARKS

The present response is intended to be fully responsive to all points of objection and/or rejection raised by the Examiner and is believed to place the application in condition for allowance. Favorable reconsideration and allowance of the application is respectfully requested.

Applicants assert that the present invention is new, non-obvious and useful. Prompt consideration and allowance of the claims is respectfully requested.

Status of Claims

Claims 1 - 4, 8 - 9, 11, 13, 21 - 25, 31 - 32 and 35 remain pending in the application. Claims 33 - 34 and 36 - 39 have been cancelled without prejudice or disclaimer. New Claim 61 has been added. Claims 1, 3, 4, 21, 24, 31 and 35 have been amended. Applicants respectfully assert that the amendments and new claims do not add any new matter.

35 U.S.C. § 112 Rejections

Claims 1 - 4, 8, 9, 11, 13, 21 - 25 and 31 - 39 were rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. In particular, the office action contends that the claims contain new matter not supported by the originally-filed specification. Applicants respectfully traverse the rejections in view of the remarks that follow.

Claim 1

The Office action contends that the limitation of "at least part of a support structure" is not supported by the originally-filed specification and thus constitutes new matter. Applicants respectfully assert that support for the limitation of "at least part of a support structure" can be found at least at page 2, lines 10 - 14 of the specification, which recited as follows:

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dispensing a raw first interface material which will be referred to as building material, or briefly BM, directly to place the construction of the 3-D object and (or not) for building part of the supporting structure of the 3-D object, dispensing a raw second interface material ... to form the other part of the supporting structure (emphasis added).

The Office action contends that the limitation of a "self-supporting" support structure is not supported by the originally-filed specification and thus constitutes new matter. Applicants respectfully assert that support for the limitation of "self-supporting" can be found at least at page 10, lines 3 - 5 of the specification as filed, which recited as follows:

Unless the support material 70 is itself adequately retained (or sufficiently dense so as to be self-supporting), the support material 70 may 'spread' or bulge" (emphasis added).

Still, the limitation of "self-supporting" was deleted from claim 1.

The Office action contends that the limitation of "said pillar not being in contact with said three-dimensional object" is not supported by the originally-filed specification and thus constitutes new matter. Applicants respectfully assert that support for the limitation of "said pillar not being in contact with said three-dimensional object" can be found at least at page 12, lines 4 - 5, as recited:

[S]upport pillars may be constructed in layers during the construction of container 84 ending a distance 'd' below the bottom layer of components 88 and 90" (emphasis added, depicted also in Fig.4-B).

Accordingly, the rejection to claim 1 should be withdrawn.

Claim 21

The Office action contends that the limitation of "said container and said support material comprising a support structure for said three-dimensional object" is not supported by the originally-filed specification and thus constitutes new matter. Claim

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21 has been amended to delete this limitation. Accordingly, the rejection to this claim is now moot.

Claim 24

The Office action contends that the limitation of "said support structure comprises a mixture of said build material and said support material within said container" is not supported by the originally-filed specification and thus constitutes new matter.

Claim 24 has been amended for clarification to read "said support structure further comprises at least one pillar of said build material and said support material and said at least one pillar are being retained within said container"

Applicants respectfully assert that support for the limitation of "said support structure further comprises at least one pillar of said build material and said support material and said at least one pillar are being retained within said container " can be found at least at page 10, lines 8 – 12 and lines 24 - 25, as recited:

In the embodiment shown in Fig. 4-A, a secondary support, in the form of a container, is used. Container 72 may be a generally box-shaped structure having an open top, which may be jetted in the same manner as the 3-D element 62 and the support material 70. Other shapes for the container may be used. Container 72 may be constituted so that it is sufficiently strong to retain the support material 70.

Additional support pillars (74, 76) may be added during construction (if required)" (emphasis added, see also Fig 4-A).

Accordingly, the rejection to claim 24 should be withdrawn.

Claim 31

The Office action contends that the limitations of "a plurality of fine pillars which are not in contact with said three-dimensional object" and "said pillars being

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surrounded by said support material and separated from said three-dimensional object by a release layer of said support material" are not supported by the originally-filed specification and thus constitutes new matter.

Applicants respectfully assert that support for the limitation of "a plurality of pillars which are not in contact with said three-dimensional object, said pillars being surrounded by said support material and separated from said three-dimensional object by said release layer" can be found at least at page 2, lines 15 – 18, page 4 lines 13 - 14 and page 12, lines 4 – 5, depicted also in Fig. 4-B) as follows:

[T]he immediate layer of supporting structure that touches the 3-D object surface may be composed of support material only, so as to serve as a release layer between the 3-D object and the rest of the supporting structure

One way of achieving such a mix is printing fine pillars of BM [build material] surrounded by SM [support material].

[S]upport pillars may be constructed in layers during the construction of container 84 ending a distance 'd' below the bottom layer of components 88 and 90 (emphasis added, depicted also in Fig.4-B).

Accordingly, the rejection to claim 31 should be withdrawn.

Claim 32

The Office action contends that the limitation of "constructing membranes of said build material or a combination of said build material and said support material between said pillars" is not supported by the originally-filed specification and thus constitutes new matter. Applicants respectfully assert that support for the limitation of "constructing membranes of said build material between said pillars" can be found at least at page 3, lines 30 – 31 and page 12, lines 17 - 21 of the specification, which recited as follows:

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A typical embodiment includes vertical pillars and horizontal membranes; each membrane is composed of one or few printed layers of BM (build material), or BM (build material) and SM (support material).

Thin membranes like 128, 130, 132, typically having at least thickness of a single layer, may also be dispensed and cured. These membranes may be used to stabilize the pillars by forming connection among them and by connecting them to the relatively rigid container wall 118. The membranes are preferably dispensed from the building material, but may be constructed from other material

Accordingly, the rejection to claim 32 should be withdrawn.

Claims 1 – 4, 8, 9, 11, 13, 21 – 25 and 31 – 39 were rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement. The office action contends that the claims contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains to make and/or use the invention.

Claims 1 – 4, 8, 9, 11, 13, 21–25 and 31 – 39 were rejected under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicants respectfully traverse the rejections in view of the showing of support as detailed above and the discussion below.

The Office action contends that the specification does not state "what part (or how much) of a support structure is made of a first material". Applicants respectfully assert that the specification teaches that the support constructions are made partly of a first material and partly of a second material. The first and second materials are combined such that the two materials together provide a sufficiently strong support construction for the 3D object being built. As is obvious to a man skilled in the art, the

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exact quantity relation between the first and second, which is not claimed, may vary based on various parameters related at least to the specific 3-D geometry and the first and second materials.

The Office action contends that the specification does not state "how a pillar (which is a support structure) is not in contact with the three-dimensional object it is supposed to support". Applicants respectfully assert that, for example, the specification teaches constructing pillars within the support material in order to strengthen the support construction. Applicants respectfully assert that it is understood from the specification to a person skilled in the art that the 3-D object being built is not supported by the pillars, but by a support structure comprising a combination of building material surrounded by support material, where the building material is dispensed in the form of pillars formed within the support material. The entire support structure is separated from the 3-D object by a release layer solely comprising support material, i.e., without building materials pillars.

The Office action contends that the specification does not state "how a support structure comprises a mixture of build material and support material within a container". Applicants respectfully assert that from the specification and Fig. 4, it is understood to a person skilled in the art that, for example, a support structure constructed using the methods described in the specification, may include a container made of building material and support material and pillars made of building material within the support material retained within the container.

The Office action contends that the specification does not state "how membranes are constructed of a build material". Applicants respectfully assert that from the specification, it is understood to a person skilled in the art that membranes can be constructed using the methods described in the specification by depositing building material within the support material to form membranes.

Accordingly, Applicants respectfully assert that the § 112 rejections be withdrawn. In light of the claim amendments and the above remarks, applicants request to withdraw the finality of the office action.

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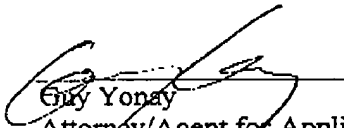
CONCLUSION

In view of at least the foregoing amendments and remarks, the pending claims are allowable. Their favorable reconsideration and allowance is respectfully requested.

Should the Examiner have any question or comment as to the form, content or entry of this Amendment, the Examiner is requested to contact the undersigned at the telephone number below. Similarly, if there are any further issues yet to be resolved to advance the prosecution of this application to issue, the Examiner is requested to telephone the undersigned counsel.

The Office is hereby authorized to charge any fees associated with this paper to deposit account No. 50-3355.

Respectfully submitted,


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Dated: February 19, 2007

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